STC.UNM

The Innovation Door to the University of New Mexico

Presented by:

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RAINFOREST IN THE DESERT

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STC Overview

RAINFOREST IN THE DESERT

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STC Mission

To foster a Rainforest in the Desert, STC.UNM nurtures innovation and economic development for the UNM community.

As a New Mexico Research Park Act organization, STC.UNM does this by:

- protecting technologies developed at UNM and transferring these technologies to the marketplace, via starting new companies and transferring technologies to established companies;
- connecting the business community to UNM for access to expertise, facilities, and research activities; and
- facilitating UNM's role as a contributor to New Mexico's economic development

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STC Board of Directors (Cont'd)

Listed Alphabetically by Last Name (Left to Right)

First Row: Dr. Chaouki Abdallah, Mr. Douglas Brown, Dr. James Cramer, Dr. Michael Dougher, Dr. Robert Fisher, Dr. Robert Frank, Gene Gallegos, J.D.,

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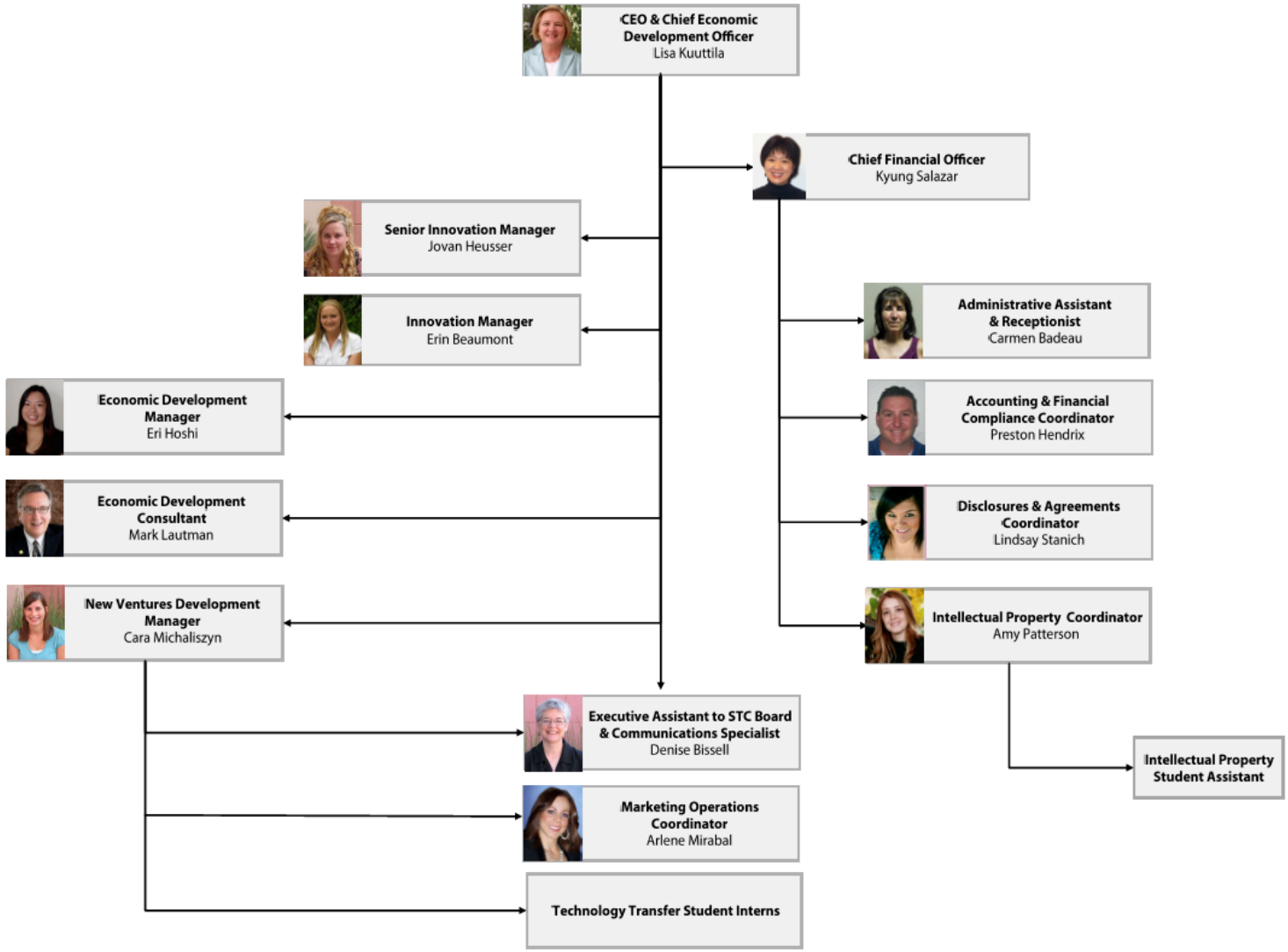
STC Organizational Chart



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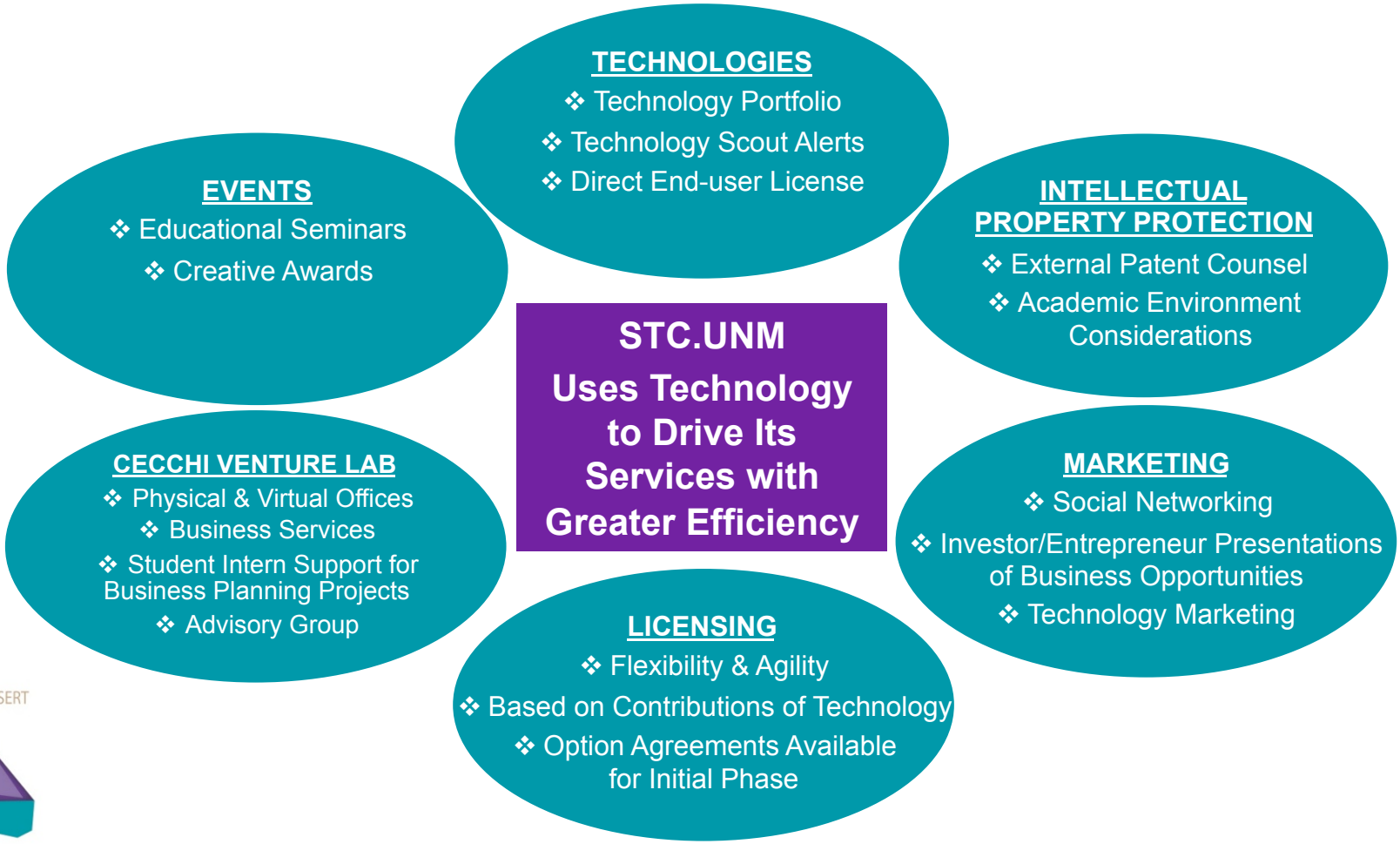
STC's Commercialization Activities



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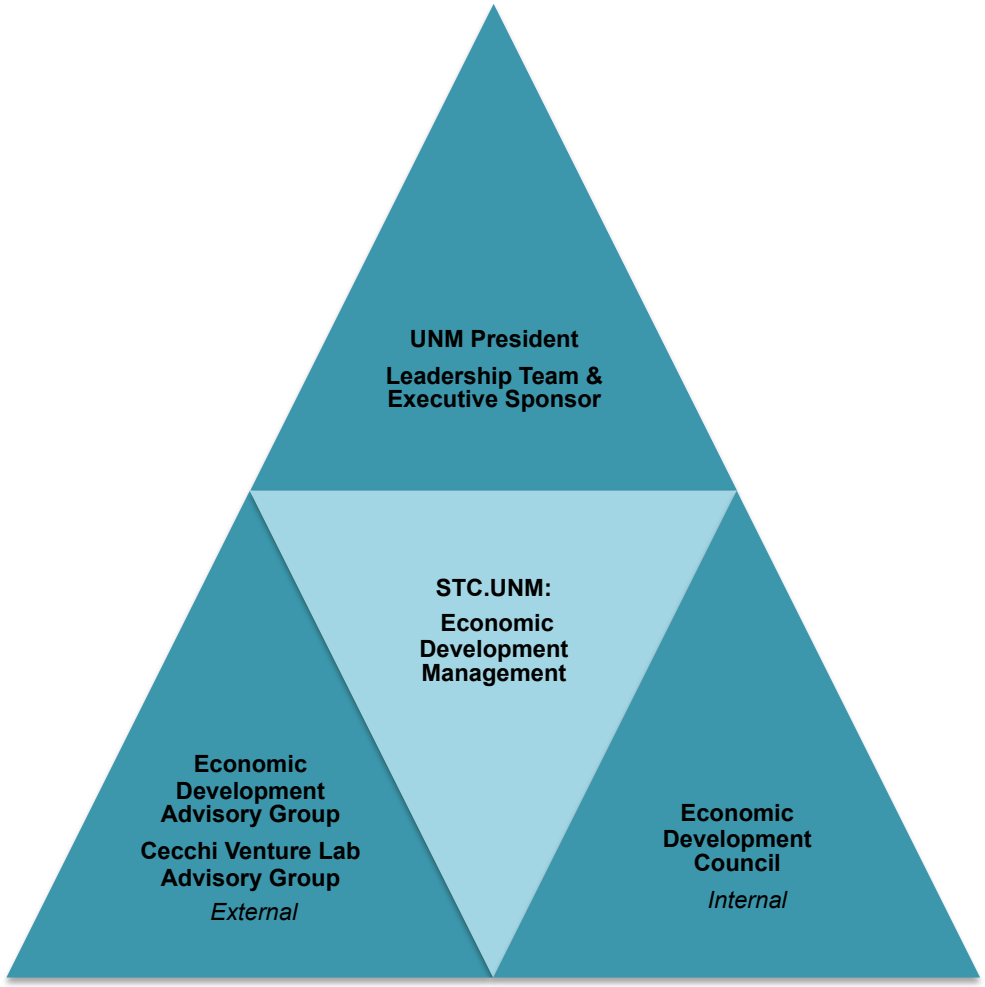
STC's Economic Development Activities



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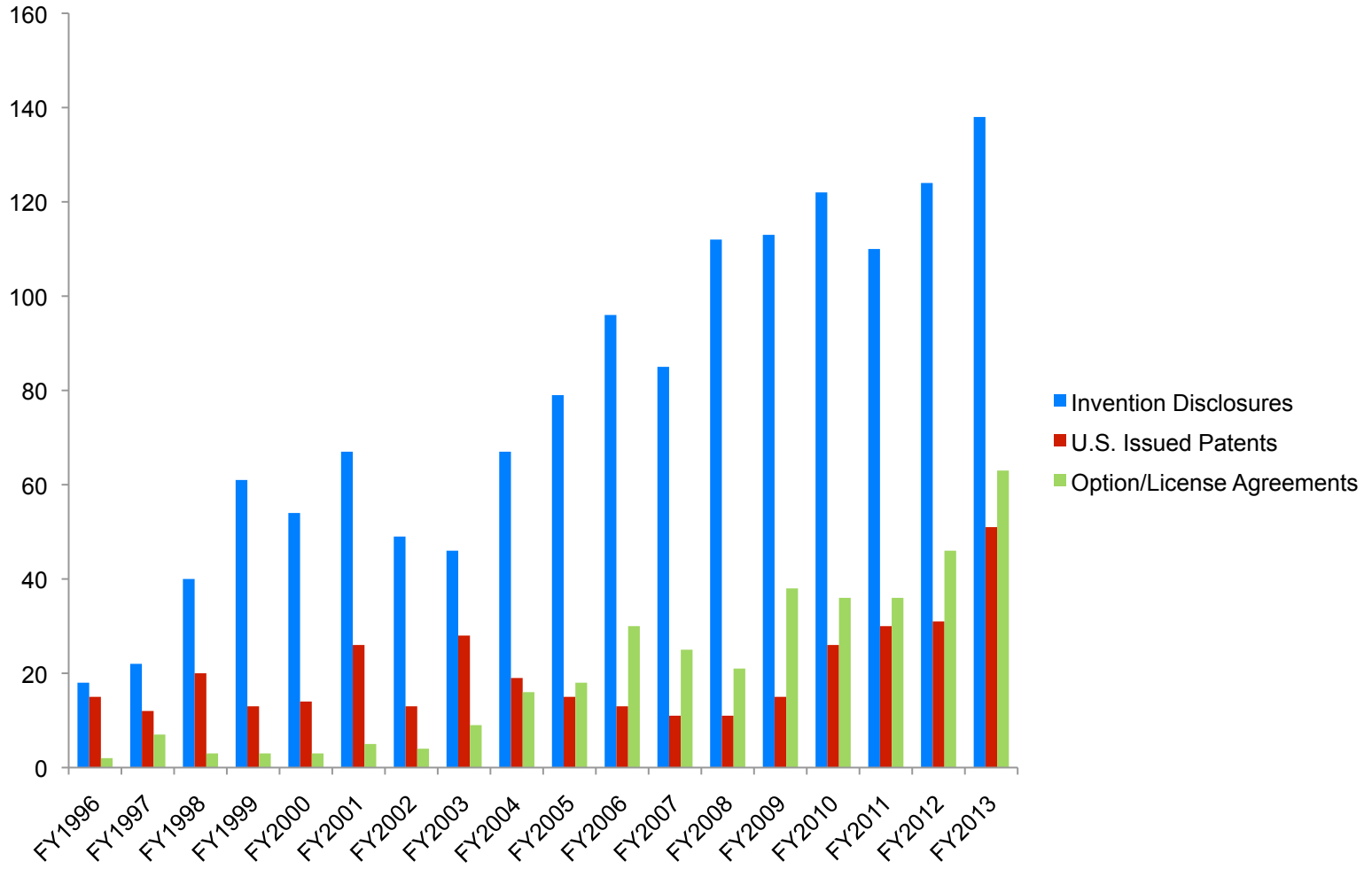
STC Metrics



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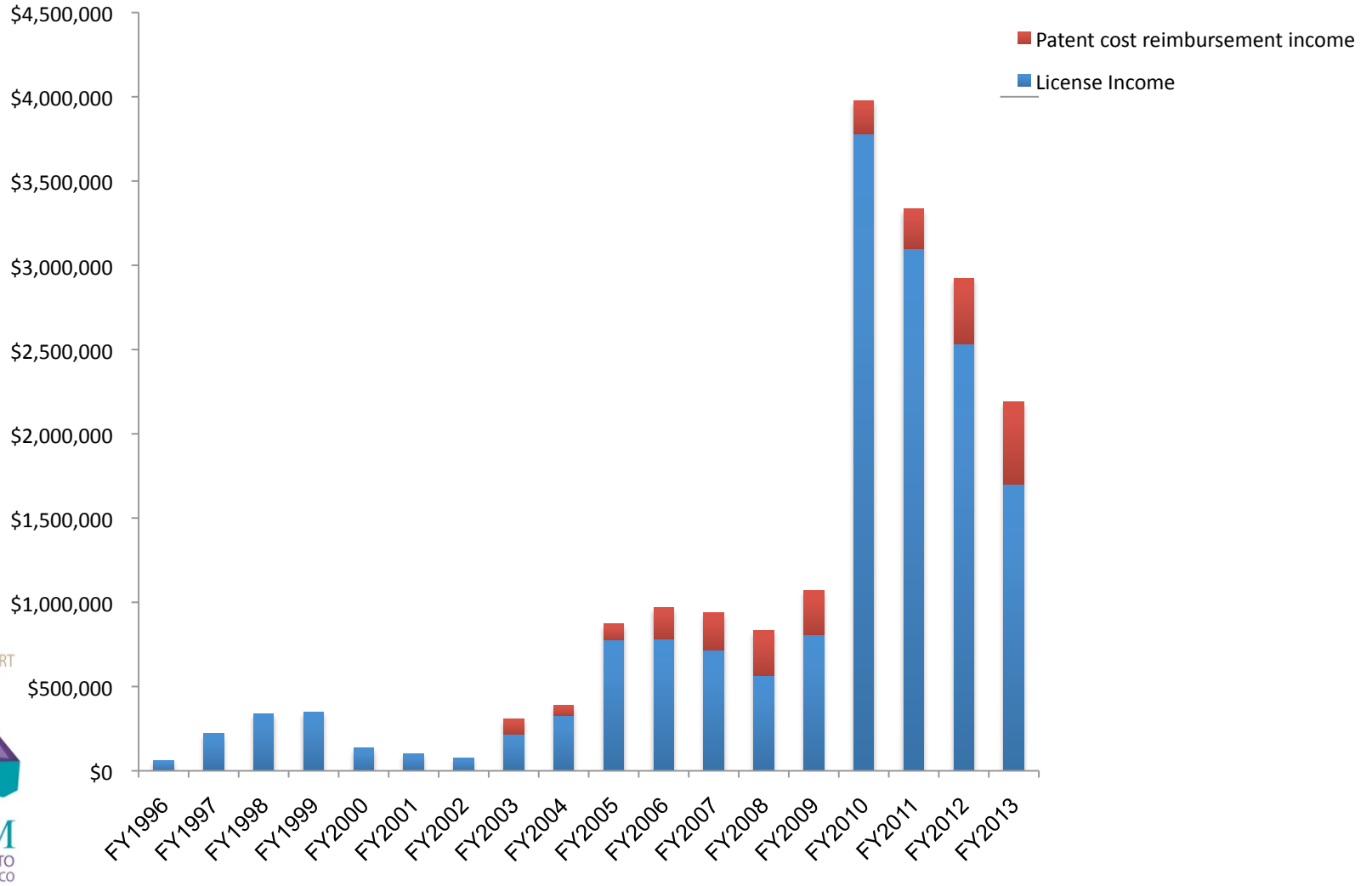
STC Metrics



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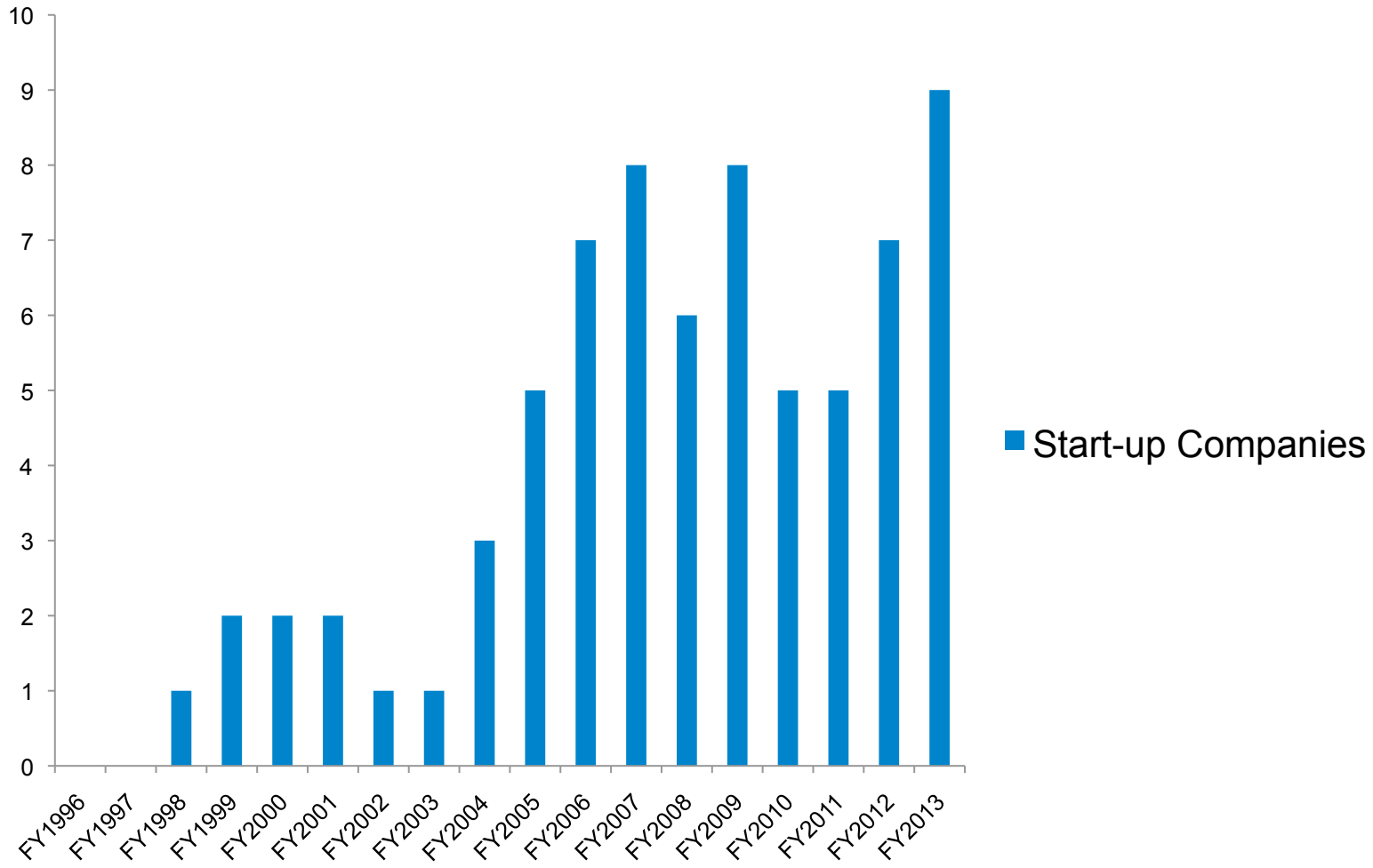

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STC Start-up Companies

New Mexico	New Mexico Continued	Out-of-State
Accelera (2014)	Plures Technologies, Inc. (2009)	Human Recombinant Protein and Vaccine Initiative for Africa (2013)
Pressure Analysis (2014)	GLO-USA (2008)	NeoVita Biosystems, Inc. (2013)
Batterade, LLC (2013)	Azano Health (2007)	algorithmRX (2012)
Sandia Electro-Optics Corporation (2013)	NanoMR (2007)	Magic Dragon Technologies, Inc. (2011)
Apline Biosciences, LLC (2013)	Nanocrystal, LLC (2007)	zNano (2010)
Biophagy, LLC (2013)	Intellicyt (2006)	Artemis Health (now Verinata Health) (2008)
Dynamic Photonics, Inc. (2013)	K&A Wireless (2005)	NuView Radiopharmaceuticals (2008)
Ecopesticides International, Inc. (2013)	Exagen Diagnostics (2004)	MagnetoOrganics (2007)
Tyrosine Pharmaceuticals, Inc. (2013)	Avanca Medical Devices, Inc. (2004)	Attochron, LLC (2004)
Protomex Life Sciences (2012)	CoMet Solutions, Inc. (2003)	
Pajarito Powder (2012)	MesoSystems Technology, Inc. (now a subsidiary of ICx Technologies, Inc.) (2000)	
ThermoDynamic Films, LLC (2012)		
Oligocide, Inc. (2011)		
TransMix Safe Lock, Inc. (2011)		
Avisa Pharma (2011)		
AgilVax (2011)		
Magic Dragon Technologies, LLC (2011)		
Wedge Health Communications, LLC (2011)		
Lotus Leaf Coatings (2010)		
Respira Therapeutics (2010)		
SK Infrared (2010)		
Quatros (2009)		

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STC Peer Institution Comparison

Among its 16 peer institutions for every $2 Million in research dollars, STC is:

- 3rd in number of invention disclosures
- 7th in number of licenses and options agreements signed
- 10th in licensing income
- 3rd in number of start-up companies created

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STC Website

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PAJARITO POWDER

- Albuquerque based start-up company focusing on non-platinum fuel cell catalysts
  - Technology is focused on the cathode side derived from a variety of different precursors

- Founded by Paul Short, CEO
  - Verge Fund
  - http://www.pajaritopowder.com/
- Inventor
  - Dr. Plamen Atanassov
  - And others from UNM's Center for Emerging Energy Technologies

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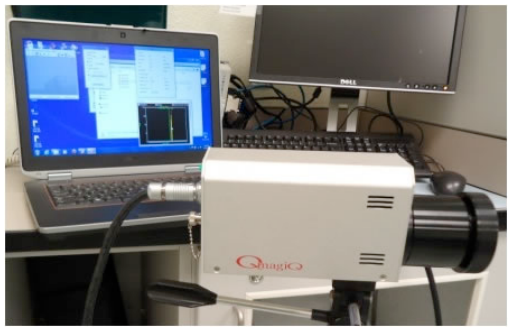
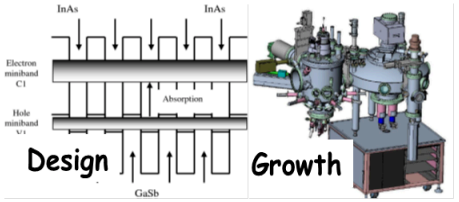
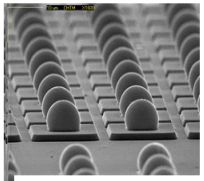
Skinfrared
Engineering Medical Solutions

- Sanchita Krishna, CSO
- Sanjay Krishna, CTO
- A noninvasive diagnostic for skin cancer, based on infrared imaging
- Obtained phase 2 SBIR grants and IRS 48D grant
- http://www.skinfrared.com
- **Currently conducting preliminary clinical trials in Dermatology at UNM**






Fabrication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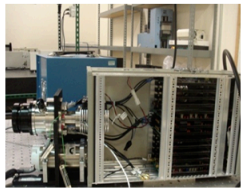
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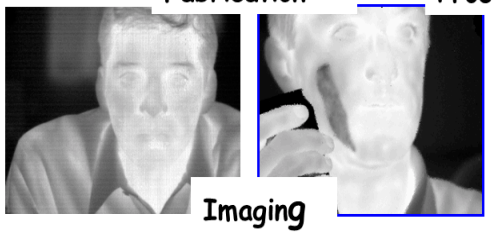
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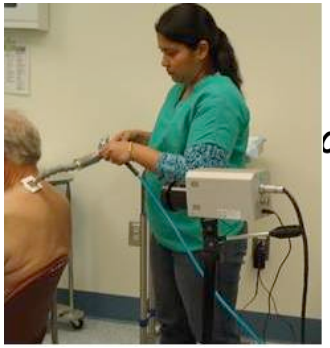

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AgilVax, Inc.

- Albuquerque, NM based start-up company developing superior vaccines and integrated platforms for rapid vaccine discovery and delivery using virus-like particle (VLP) based platforms.
  - This VLP platform, is versatile, cost-effective, and allows the display of diverse vaccine antigens on the surface of a highly immunogenic VLP scaffold.
  - This platform can be used to develop safe and efficacious vaccines for infectious and chronic diseases.
  - It is the only vaccine discovery platform that simultaneously facilitates both vaccine discovery and implementation.

- Dr. Federica Pericle, CEO
- Developed by Dr. David Peabody & Dr. Bryce Chackerian
- **Currently Seeking Funding to expand applications and commercialize the technology platform**

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- **Avisa Pharma™ Inc., (“Avisa”) is an early stage company developing a proprietary, point-of-care biomarker BreathTest for the rapid and accurate detection and monitoring of urease producing multi-drug resistant pathogens.**
  - Such pathogens compromise lung functionality, morbidity/mortality in patients with Ventilator Associated Pneumonia (VAP) and Cystic Fibrosis (CF).
  - IDE Filed for Safety and Dosing for CF
  - IP includes issued patents for CF, VAP, and TB and pending patents for c. diff infection and isoniazid-resistant TB.
- **Avisa is based in Albuquerque, NM and was founded in 2010 David S. Joseph, an experienced, successful, life science entrepreneur and by Graham Timmins, Ph.D., co-inventor of the Avisa technology platform.**
  - Raised over $3.2 million for CF definitive trial and FDA and CE Mark Approvals

- $ Billion + Market Opportunity
- De-risked, new use of an existing drug currently commercialized

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NANOMR

- nanoMR has developed the first system for rapid isolation of rare cells from complex matrices at levels of 1 cell/mL or lower.
  - Unique target capture technology based on proprietary immunomagnetic capture techniques and reagents
  - Proven capability to capture single target cells from whole blood, with high efficiency (>75% recovery in under 30 minutes)
  - Viable captured cells can be further processed (e.g. rapid culturing for antibiotic sensitivity testing), or to provide purified DNA for molecular testing.

- Dr. Victor Esch, President & CEO

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- Large Facility in Albuquerque, NM
- Raised $21 million in venture capital since launching in 2006
- Starting FDA trials

intellicyt

- Develops and markets innovative high-throughput cell and bead-based screening solutions for use throughout the life sciences.

- Founded by Terry Dunlay, CEO
  - Dr. Larry Sklar, Professor of Pathology
  - Dr. Bruce Edwards, Research Professor of Pathology

- Based in Albuquerque, NM (Manufacturing and Distribution)

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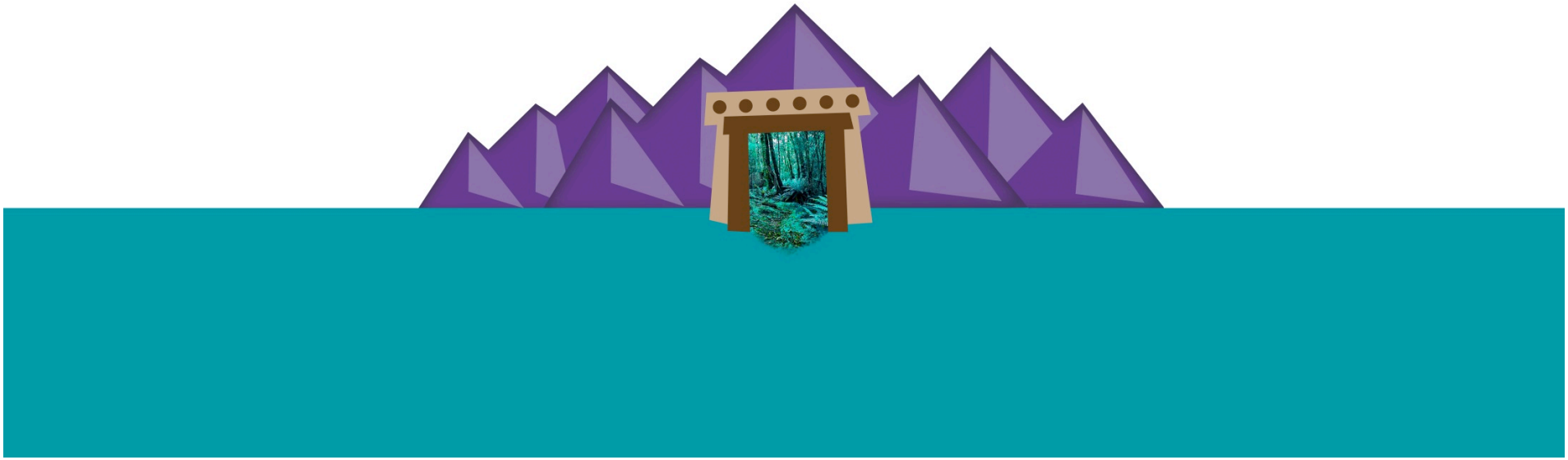
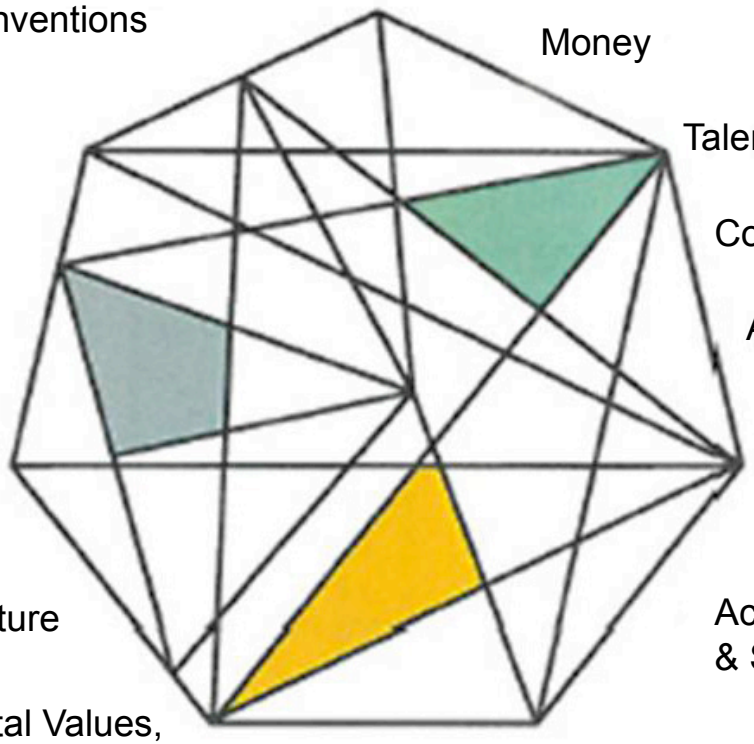
Rainforest in the Desert



Create a Rainforest in the Desert

- **How to Build Innovation Ecosystems**



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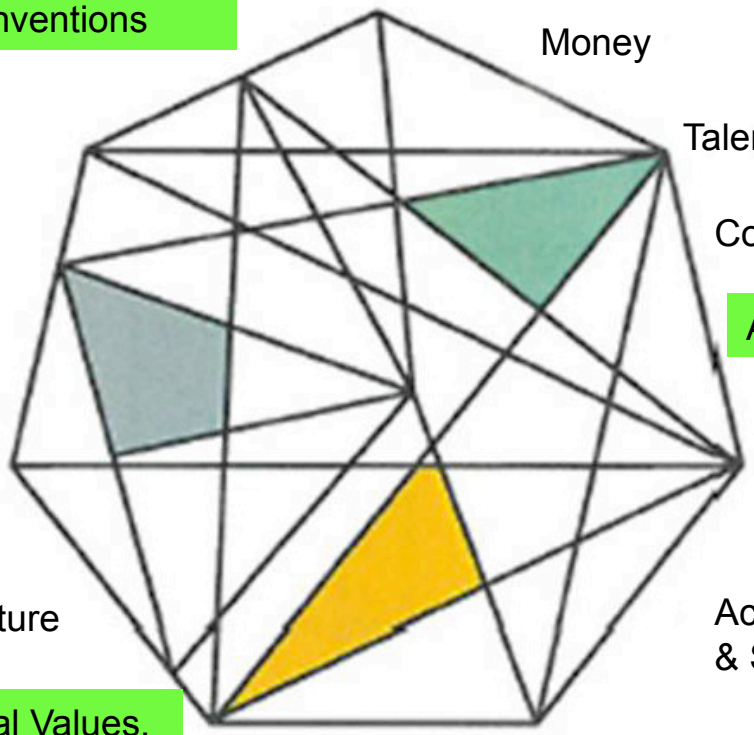
Source: *The Rainforest: The Secret to Building the Next Silicon Valley*

Create a Rainforest in the Desert

- **New Mexico has many of the ingredients**



Strong

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Create a Rainforest in the Desert

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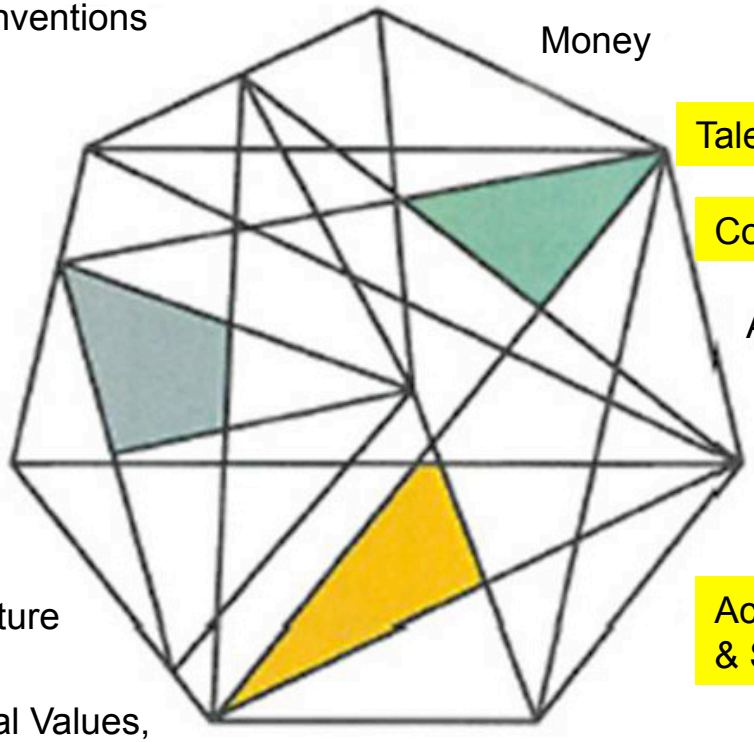

Ideas & Inventions

Money

Government

Talent – local & transplants

Trade & Industry Organizations

Coaches & Mentors

Academia & Research

Education & Workforce Development

Business Support Services

Real Estate & Business Infrastructure

Access to Global Markets & Supply Chains

Culture, Societal Values, Models, Rule of Law

News & Media Outlets

Moderate

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Create a Rainforest in the Desert

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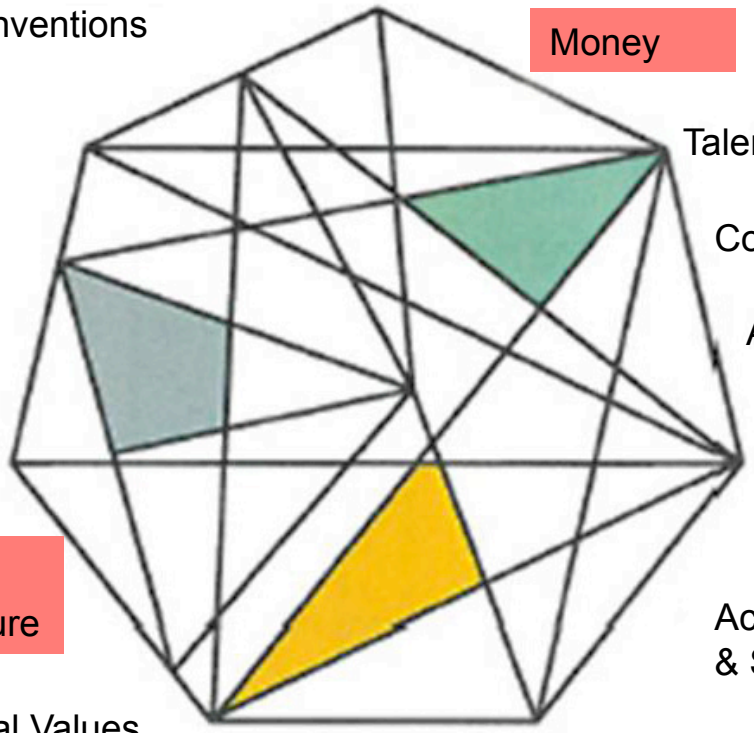

Ideas & Inventions

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Needs more support

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How to address weaknesses in New Mexico Infrastructure

- **Money**
  - **Increase investments in New Mexico venture funds**
    - (Ex. programs: Pennsylvania, Michigan, Illinois, North Carolina)
  - **Provide Gap Funding to Research Organizations**
    - Impact of Gap Funding* (40 organizations, $126,578,488 investment)
      - 76-81% of funded projects commercialized on average
      - $2.8B leveraged from public and private investment sources
      - 395 new start-up companies
      - 188 technology licenses to existing companies
      - 7,753 new jobs, at cost of $16,300 gap fund dollars per job
      - $75M returned to the organizations through repayments, royalties, and equity sales
      - (Ex. programs: MIT, UC-San Diego, Florida State University)
- **Real Estate and Business Infrastructure**
  - **Need for a research district**

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*Source: Mind the Gap 2011 Report

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- We have good science in New Mexico.
- Albuquerque has a thriving creative community.
- We have talented entrepreneurs (local and transplants, attracted due to the “place”).
- We have an “entrepreneurial personality” in New Mexico*
- We have a small, but growing, ecosystem of start-ups
- We have no research district in central New Mexico

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*New Study Examines Correlation Between Entrepreneurial Personality Type and Rates of Regional Entrepreneurial Activity: https://stc.unm.edu/news/news.php?newsid=446

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- **What is a research district?**
  - A research district creates a mutually supportive relationship between a scientific institution and a concentration of technology businesses.
  - The most successful districts are first and foremost centers of innovative science.
  - However, innovation is not only a product of the lab.
  - Innovation is driven by people and the ability of people to share and develop ideas together.
  - A research district brings the pieces together.

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UNM Start-up Company Locations

Comet Solutions (2155 Louisiana Blvd NE – 2,500 sqft)
Intellicyt (9620 San Mateo Blvd NE – 8,000 sqft)
NanoMR (5741 Midway Park Blvd – 19,000 sqft)
Sandia Electro-Optics (I-25 & Candelaria – 13,000 sqft)
K&A Wireless (2617 Juan Tabo Blvd NE)

Technology Ventures Corporation (TVC)
New Mexico Start-up Factory (1155 University Blvd. SE)
- Shared-office – **Dynamic Photonics, Tyrosine Pharma, Ecopesticides International** (225 sqft)

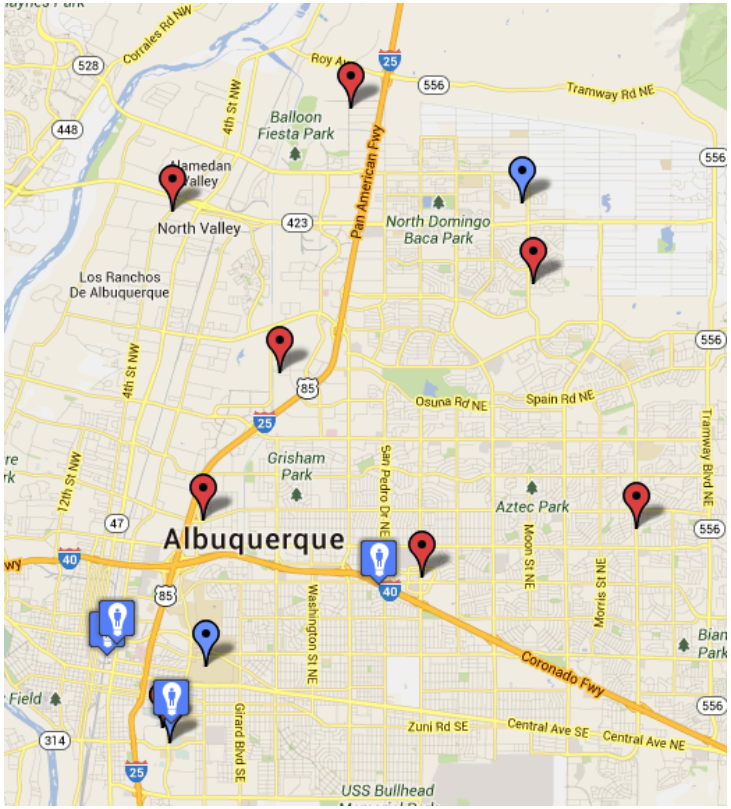
Incubator Space
BioScience Center (5901 Indian School Rd NE)
19,500 sqft building; 2500 sqft lab space
- **Biophagy**
- **Oligocide** (1000 sqft lab and office)
- **Avisa Pharma, Inc.**
- **Azano Health**
- **AgilVax**
- **InLight Solutions, Inc.**

UNM STP & Cecchi Venture Lab (University & Bradbury)
- **SKINfrared** (2000 sqft)
- **Lumidigm**

Verge Building (317 Commercial St. NE)
- **TruTouch**
- **Pajarito Powder** (200 sqft office; 2000 sqft manuf.)

WESST Enterprise Center (609 Broadway Blvd. NE)

No designated office space
- **Protomex Life Sciences** (244 sqft of home offices)
- **Quatros**
- **Transmix Safe Lock, Inc.** (36 sqft desk space)
- **ThermoDynamics Films, LLC** (100 sqft of kitchen)
- **Batterade, LLC**
- **Wedge Health Communications**
- **Alpine Biosciences**
- **Nanocrystal LLC**



Of the 37 active start-up companies based on UNM Technology, STC has helped to spin-off, 24 of them are located throughout the Albuquerque area, with no geographic proximity. We have no synergy of place.

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Create a Rainforest in the Desert

- **Innovate ABQ is envisioned to:**
  - **Strengthen the economic base of the mid Rio Grande region and the State of New Mexico through the advancement of knowledge worker jobs.**
  - **Create opportunities for the knowledge workers graduating from our educational institutions and those experienced workers in the community.**
  - **The Mission would be carried out through:**
    - Technology commercialization: A NM Technology Transfer Center would be created, housing offices from research organizations throughout the state, allowing for one-stop shopping for entrepreneurs, investors, and companies
    - Business Incubation: In partnership with the BioScience Center, WESST and other incubators
    - Public/Private partnerships: Small and large scale, demonstration projects
    - Entrepreneurial education and support: In partnership with Anderson, CNM and others
    - 21st century design thinking: Adaptability and flexibility
    - Community building: Collision for innovation and social entrepreneurship

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Innovate ABQ Possible Sites

Innovate ABQ@Downtown (Central – Broadway)

- +/- 7 acre site along historic Route 66
- Existing buildings on former Baptist Church site could be reused in near and/or long term phasing of project
- Leverage existing neighborhood amenities
- Proximity to a large supply of small parcels and buildings that can be adapted incrementally to support Innovate ABQ
- Adjacent to Rail Station and Rail Yards
- Proximity to WESST, Tricore and Verge Incubator
- Metropolitan Redevelopment Area, Tax incentives, TIDD
- Zoning: SU-3 Special Center Zone

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Innovate ABQ@Downtown Site Images

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Innovate ABQ@Downtown Site Context

QUARTER-MILE RADIUS AMENITIES

RESIDENTIAL
1. AHS Lofts
2. BelVedere
3. Gold Lofts
4. Silver Gardens
5. Banque Lofts

RESTAURANTS & CAFES
6. Standard Diner
7. A&B's Lunch Box
8. Artichoke Cafe
9. Farina
10. Grove
11. Holy Cow
12. Gravy

13. Apothecary Lounge
14. Hartford Square

OFFICE
15. WESST
16. Verge
17. Singer Building
18. Union Square

ENTERTAINMENT
19. Century Theaters
20. Sunshine Theater

CIVIC
- Alvarado Transit Center
- Convention Center
- Special Collections Library

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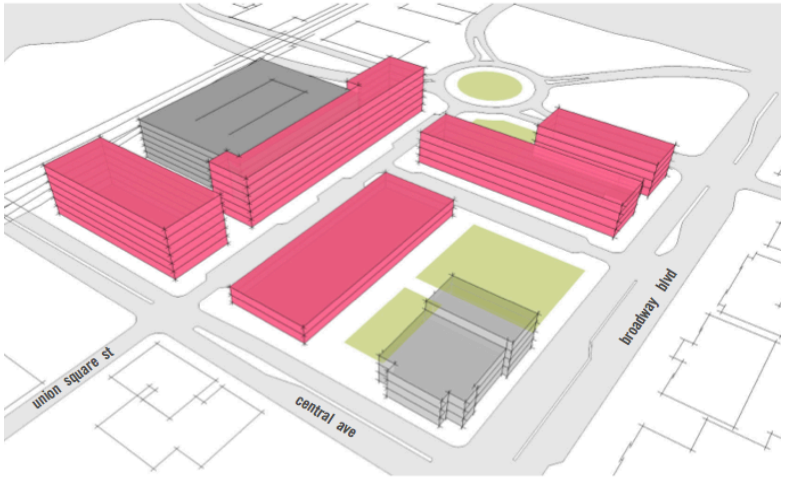
Innovate ABQ@Downtown Site Drawings



	Type	Height	Square Feet	Employees
Phase I				
Building 1a	Innovation	Two	50,000	182
Building 1b	Residential	Four	64,800	162
Building 1c	Residential	Four	38,400	96
Phase II				
Building 2a	Office	Six	99,000	360
Building 2b	Residential	Six	102,000	255
Building 2c	Parking	Six	688 Spaces	0

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Innovate ABQ Possible Sites

Innovate ABQ@Mesa

- Acquire Aperture Center as Mesa del Sol, LEED-certified 78,027 sq ft building, south of the Albuquerque Sunport (UNM has partial ownership interest currently)
- Business Incubator
  - BioScience center II
  - IT, Energy, other incubator space
  - Soft Landing for WESST incubator
- New Mexico Technology Transfer Center

  Potential Partners to include:

  - STC.UNM, CNM, AFRL, Lovelace Respiratory Research Institute, Sandia National Laboratories (already has a presence), Los Alamos National Lab, New Mexico Tech, New Mexico State University, New Mexico Junior College, San Juan College
  - Create a valuable one-stop-shop approach for companies, entrepreneurs and investors seeking to evaluate new technology business opportunities
- Expand partnerships formed under smart grid project with NEDO and 19 Japanese companies

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Innovate ABQ@Mesa Site Images

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Possible Statewide Impact for Other Location

Innovate _____ (single site)

or

Innovate _____@_____ (multiple sites)

Connected by a statewide network sharing affiliated programming and resources.

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Impact of Innovate ABQ

A catalyst for a new innovation economy in New Mexico

- Since 1996, STC.UNM, the University's technology transfer arm, has Received 312 issued patents, Signed 302 license and option agreements, and Spun off 63 start-up companies from UNM technologies.
- In 2009 alone, sixteen UNM start-up companies generated a significant impact on the local economy—162 jobs, $7 million in revenue, $8.5 million in salaries and benefits, and $18 million in goods, services and spending.
- STC facilitated the creation of 9 start-up companies in 2013, with the goal of facilitating the formation of 7-10 new companies over the next year.
- We estimate the project will create 542 jobs.
- By supporting the purchase of the Central and Broadway property and following through on its development, conservative estimates project that construction alone will result in at least $150 million of private investment.
- We anticipate the long-term impact of Innovate ABQ to be much larger, as properties along Central avenue, and in the downtown core, are renewed and/or developed to their full potential.

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Conclusion

Innovate ABQ will leverage New Mexico's existing assets and resources and serve as the lynchpin to advance the economic prosperity in the currently distressed community starting along the Route 66 corridor.

- By working together, Albuquerque will be committed to making smart investments that result in a stronger and more aggressive private sector, thus partially relieving our current dependence on federal funding.
- In the same vein, UNM is equally committed to realizing a more productive and symbiotic relationship with the City and County.
- The primary goal of Innovate ABQ is to catalyze this undertaking.
- UNM, Albuquerque and New Mexico have the potential to serve as a powerful model for others attempting to address critical economic issues.

The making of a great place for research, and the development of complimentary services will be the focus of Innovate ABQ.

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